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## APPENDIX A

**CLASS 370, MULTIPLEX COMMUNICATIONS****SECTION I - CLASS DEFINITION**

A. This is the generic class for multiplexing or duplexing systems, methods, or apparatus.

- (1) Note. Multiplexing includes for example, time division multiplexing (TDM) frequency division multiplexing (FDM), orthogonal and quasiorthogonal multiplexing techniques, phantom connections and plural channel adaptive systems.
- (2) Note. Selective or telemetering systems which may be analogous to multiplexing techniques are not classified here but elsewhere. (See References to Other Classes, below.)
- (3) Note. The distinction between multiplexing and selective or telemetry is: in multiplexing, the information is unrestricted as to content, e.g., a teletype-writer which uses an alphabet to transmit unlimited information, whereas in selective or telemetry devices, the information is restricted as to content, e.g., a transducer measuring a single parameter.

B. This class includes elements and circuits forming subcombinations having a utility unique to multiplexing such as rotary distributors used as multiplexers, synchronizers used to control distribution of multiplexed channels, bridge duplex circuits, resonant circuits having a special utility in a frequency division multiplexing system.

- (1) Note. Multiplex modulators, per se, are not classified in this class. See classification elsewhere. (See References to Other Classes, below.)

**SECTION II - LINES WITH OTHER CLASSES AND WITHIN THIS CLASS**

A. Electrical circuits which may be used in multiplexing systems but are not unique to multiplex communications are classified in the appropriate class for such circuits. (See References to Other Classes, below.)

B. Significantly claimed multiplex techniques in combination with the subject matter of Class 178, Telegraphy,

Class 375, Pulse or Digital Communications, Class 379, Telephonic Communications, or Class 455 Telecommunications are classified in Class 370, Multiplex Communications.

C Significantly claimed apparatus external to this class, claimed in combination with apparatus under the class definition, which perform multiplexing operations, are classified in the class appropriate to the external device. (see paragraph B above). (See References to Other Classes, below for examples.)

D Nominally claimed apparatus external to this class in combination with apparatus under the class definition, is classified in this class unless provided for in the appropriate external class. For example, a nominally recited coupled network which includes significant multiplexing operations is classified herein.

E. Multiplexing systems and related devices found in other classes, for which see below

**SECTION III - REFERENCES TO OTHER CLASSES****SEE OR SEARCH CLASS:**

- 73, Measuring and Testing, appropriate subclass for significantly claimed apparatus external to this class (370) which perform multiplexing operations.
- 246, Railway Switches and Signals, appropriate subclass for multiplexed railway signalling information.
- 318, Electricity: Motive Power Systems, subclass 562 for multiplexed data-transmission links utilized in a servo systems.
- 324, Electricity: Measuring and Testing, appropriate subclass for significantly claimed apparatus external to this class (370) which perform multiplexing operations.
- 327, Electrical Transmission or Interconnection Systems, subclasses 407+ and 415+ for converging and diverging signal switched paths, respectively.
- 329, Demodulators, subclasses 300+ for frequency shift keying demodulator; subclasses 304+ for phase shift keying demodulator; subclasses 311+ for pulse demodulator; subclasses 315+ for frequency modulation demodulator; subclasses 345+ for phase modulation demodulator; and subclasses 347+ for amplitude modulation demodulator.

- 332, Modulators, subclasses 100+ for frequency shift keying modulator; subclasses 103+ for phase shift keying modulator; subclasses 117+ for frequency modulator; and subclasses 149+ for amplitude modulator.
- 332, Modulators, subclasses 106+ for multiplex pulse modulation, subclasses 119+ for multiplex frequency modulation, subclasses 144+ for multiplex phase modulation, and subclasses 151+ for multiplex amplitude modulation.
- 333, Wave Transmission Lines and Networks, subclass 1 for plural transmission lines or networks; subclass 4 for balanced transmission lines; subclass 117 for hybrid-type networks; and subclasses 165 through 167 for wave filters.
- 340, Communications: Electrical, subclass 853.1 for geophysical systems which may include multiplexing means; subclasses 825-825.98 for selective systems analogous to multiplexing systems (including foreign art collection FOR 107 for a selective loop system); and subclasses 870.11-870.15 for telemetering which may include multiplexing means.
- 341, Coded Data Generation or Conversion, subclass 141 for multiplex in analog to or from digital conversion.
- 342, Communications: Directive Radio Wave System and Devices (e.g., Radar, Radio Navigation), subclasses 1 through 25 for radar systems which may include multiplexing systems.
- 345, Computer Graphics Processing, Operator Interface Processing, and Selective Visual Display Systems, appropriate subclasses for display communications which may include multiplexing means.
- 348, Television, appropriate subclasses for television signal transmission which may use multiplexing techniques.
- 358, Facsimile and Static Presentation Processing, subclass 425 for multiplex facsimile information.
- 360, Dynamic Magnetic Information Storage or Retrieval, subclasses 18+ for multiplex magnetic information.
- 365, Static Information Storage and Retrieval, subclasses 189.01+ and 230.01+, for a static memory system with the handling of signal information or the addressing of memory locations respectively analogous to multiplexing techniques particularly subclasses 189.02 and 230.02 for such a system having multiplexed signals in each of the respective systems.
- 369, Dynamic Information Storage or Retrieval, subclass 102 for plural information signals multiplexed on an optical storage track..
- 380, Cryptography, subclasses 255 through 276 for a communication system using cryptography.
- 381, Electrical Audio Signal Processing Systems and Devices, subclasses 1+ for stereo, especially subclasses 2+ for broadcast and multiplex stereo.
- 385, Optical Waveguides, subclasses 1+, 4+, or 16+ for optical waveguides with modulation or switching.
- 398, Optical Communications, subclasses 41 through 42 for duplex optical communication and subclasses 43-103 for multiplex optical communication.
- 702, Data Processing: Measuring, Calibrating, or Testing, Class appropriate subclasses for significantly claimed apparatus external to this class (370) which perform multiplexing operations.
- 709, Electrical Computers and Digital Processing Systems: Multiple Computer or Process Coordinating, subclasses 200-253 for general purpose programmable computers which may include multiplexing techniques wherein data is transferred between the computers and processing of the data by the computers occurs before or after the data transfer operation.
- 710, Electrical Computers and Digital Data Processing Systems: Input/Output, subclass 316 for data processing intra-system connection which may use a bus switch.
- 714, Error Detection/Correction and Fault Detection/Recovery, subclasses 3+ for replacement with spare devices, subclass 4 for reconfiguring transmission facility, and subclasses 712+ for transmission facility testing.
- 725, Interactive Video Distribution Systems, appropriate subclasses for video signal transmission which may use multiplexing techniques.

## SECTION IV - GLOSSARY

### BANDWIDTH

The width of a communications channel.

### LOCAL AREA NETWORK (LAN)

A relatively short distance data communication network linking computers and other devices utilizing some type of standard control.

343, for multiplex communication over free space via frequency channels

**481 Multiple frequency translations:**

This subclass is indented under subclass 480. Subject matter wherein a group of signals occupying a definite frequency band is transferred from one position in the frequency spectrum to another in such a way that the arithmetic frequency difference of signals within the band is unaltered.

**482 Particular carrier generation:**

This subclass is indented under subclass 480. Subject matter including features specific to a generation of a basic frequency wave (carrier wave); such basic wave is modulated by an information bearing signal (modulating signal) in a modulation process.

**483 Using angle modulation:**

This subclass is indented under subclass 480. Subject matter using a modulation in which an angle of a sine wave carrier is a characteristic varied from its normal value by modulation.

(1) Note. Phase and frequency modulation are particular forms of angle modulation.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

215, for phase modulation.

**484 Digital analysis or synthesis of a group:**

This subclass is indented under subclass 480. Subject matter in which a frequency multiplex composite spectrum is produced or resolved into its constituent channels by digital processing techniques (e.g., digital filters).

SEE OR SEARCH CLASS:

708, Electrical Computers: Arithmetic Processing and Calculating, subclasses 300+ for a digital filter.

**485 Subscriber carrier:**

This subclass is indented under subclass 480. Subject matter in which an additional individual subscriber service is provided by adding a carrier channel to an existing communication line.

SEE OR SEARCH CLASS:

340, Communications: Electrical, subclasses 870.18+ for a telemetric carrier signaling system; and subclasses 310.01+ for a signal over a power line.

455, Telecommunications, subclasses 400+ for a super audible telephone carrier system where a super audible carrier wave for transmission of telephone signals is transmitted over an electrical system other than a baseband telephone line.

**486 Program distribution:**

This subclass is indented under subclass 485. Subject matter wherein scheduled information is distributed over a carrier system (e.g., commercial wired radio broadcast).

SEE OR SEARCH THIS CLASS, SUB-CLASS:

312, for message addressed to multiple destinations.

339, for plural transmitters/receivers operating off of a common antenna.

SEE OR SEARCH CLASS:

381, Electrical Audio Signal Processing Systems and Devices, subclasses 77+ for one-way program distribution.

455, Telecommunications, subclasses 3.1+ for an analog signal distribution system.

725, Interactive Video Distribution Systems, for appropriate subclasses.

**487 Combined communication of diverse information types:**

This subclass is indented under subclass 486. Subject matter wherein the program distribution includes plural types of communication media.

**488 Connecting filters:**

This subclass is indented under subclass 485. Subject matter in which an arrangement of filters or filtering techniques are employed for signal combination or separation.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

484, for digital filtering used in a carrier system.

SEE OR SEARCH CLASS:

333, Wave Transmission Lines and Networks, subclasses 100+ and 165 through 167 for coupling networks utilized in a manner similar to networks classified here.

**489 Bus (distributed stations):**

This subclass is indented under subclass 480. Subject matter in which information is transferred over one or more common frequency channel shared by a plurality of stations having the same level of control.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

485, for a telephone subscriber carrier system.

**490 Combined communication of diverse information types:**

This subclass is indented under subclass 489. Subject matter wherein distributed information includes plural types of communication media.

**491 Pilot:**

This subclass is indented under subclass 480. Subject matter in which at least one signal wave, usually a single frequency, is transmitted for control purposes, e.g., A.G.C., Doppler correction.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

500, for pilot control signal in multiplex communications over time channels.

SEE OR SEARCH CLASS:

381, Electrical Audio Signal Processing Systems and Devices, subclasses 1+ for a stereo system with pilot signals.

**492 Repeater:**

This subclass is indented under subclass 480. Subject matter having a retransmitting station between communicating stations to compensate for transmission attenuation losses or to

extend the range of communication between a group of stations.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

274, for a quadruplex repeater.

279, and 293, for a duplex repeater.

315+, for a repeater used in communication over free space.

501, for a repeater used in multiplex communications over time channels.

SEE OR SEARCH CLASS:

178, Telegraphy, subclass 70R+ for a telegraphic nonmultiplex repeater.

330, Amplifiers, for an amplifier which may be used as a repeater.

379, Telephonic Communications, subclasses 338+ for a telephonic nonmultiplex repeater.

455, Telecommunications, subclass 23 for a nonmultiplex frequency carrier wave repeater system.

**493 Combined voice and data transmission:**

This subclass is indented under subclass 480. Subject matter having transmission of a composite signal comprising audio and data.

**494 Data over voice:**

This subclass is indented under subclass 493. Subject matter wherein data are transmitted on a carrier frequency higher than the voice frequency range.

**495 Data under voice:**

This subclass is indented under subclass 493. Subject matter wherein data are transmitted on a carrier frequency lower than the voice frequency range.

**496 Signaling:**

This subclass is indented under subclass 480. Subject matter including means for transmitting supervisory or indicating information ancillary to principal information being transmitted (e.g., E and M signaling).

SEE OR SEARCH THIS CLASS, SUB-CLASS:

522, for signaling in multiplex communications over time channels.

**CLASS 455, TELECOMMUNICATIONS****SECTION I - CLASS DEFINITION**

This is the generic class for modulated carrier wave communications not elsewhere classifiable.

Some art areas excluded from this class are: Alternating or pulsating current telegraphy; Antennas; Broadcast or multiplex stereo; Condition responsive indicating systems with a radio coupling link; Directive carrier wave systems; Multiplex carrier wave communications; Paging via modulated carrier wave; Pulse or digital communications which may be modulated onto a carrier wave; Reflected carrier wave systems (e.g., radar); Selective (e.g., remote control); Telemarketing; Television; Facsimile. (See References to Other Classes, below, for class references.)

**SECTION II - LINES WITH OTHER CLASSES AND WITHIN THIS CLASS**

The combination of the subject matter of this class (455) and other art environment is generally classified with the other art environment where that environment is significant by virtue of the claimed relationship. For example: Directive systems; Geophysical systems; Radar systems; Radio remote control systems; Telegraph systems; Telemetering systems; Television systems; Facsimile systems (See References to Other Classes, below.)

Subcombinations specific to a modulated carrier wave communication system are classified herein unless classified elsewhere. For example: Demodulation and detector, oscillators, per se, Modulators, per se, and tuners, per se, are classified elsewhere. (See References to Other Classes, below.)

- (1) Note. The classification lines between this class (455) and the related subcombinations classes are found in the class definitions of these subcombination classes.

**ORGANIZATION OF THIS CLASS**

Subclasses 1-355 of this class (455) are limited to radio wave communication systems in which the carrier wave is modulated by a continuous (analog) signals. These subclasses exclude:

(A) Remote control of an external device which is classified in Class 340, subclasses 825-825.98.

(B) Multiplexing of signals which represent intelligence; see Class 370.

(C) Pulse or digital signals which represent intelligence; see Class 359, subclasses 109-195; and Class 375.

The above subclasses may include pulse signals which are used to control a transmitter or receiver; however, where the information content is represented by a pulse or digital signal, classification is in Class 375. Subclass 899 of this class (455) is miscellaneous analog or pulse modulation carrier wave communication not elsewhere classified, for example, modulated protons, muons, or neutrino particles utilized for communication of information.

**SECTION III - REFERENCES TO OTHER CLASSES****SEE OR SEARCH CLASS:**

- 33, Geometrical Instruments, for geometrical type measuring instruments that may employ carrier wave telemetering links.
- 73, Measuring and Testing, which class may include carrier wave telemetric links.
- 178, Telegraphy, subclasses 66.1+ for alternating or pulsating current telegraphy. (See Lines With Other Classes and Within This Class, Art Areas Excluded From This Class.)
- 178, Telegraphy, for telegraph systems. (See Lines With Other Classes and Within This Class, Combination of The Subject Matter of This Class (455) and Other Art Environment.)
- 178, Telegraphy, provides in subclasses 2+ for various telegraph systems comprising means for transmitting mark and space or coded telegraph messages between stations and including a plurality of telegraph instruments, such as transmitting and receiving instruments in circuit, and indented subclass 49 for superimposed current systems.
- 246, Railway Switches and Signals, appropriate subclasses for carrier wave railway signalling systems, particularly subclasses 2+ for train dispatching systems; indented subclasses 7+ providing for telegraphy or telephony; subclasses 20+ for block-signal systems; and subclasses 167+ for cab signal or train control systems.
- 257, Active Solid-State Devices (e.g., Transistors, Solid-State Diodes), appropriate subclasses for integrated circuit structure, bipolar, and field

- effect transistors (or combinations thereof), light emitting injection diodes, and other light emitting devices, etc.
- 330, Amplifiers, for demodulation and detector, per se.
- 331, Oscillators, for oscillators, per se.
- 332, Modulators, for modulators, per se.
- 334, Tuners, for tuners, per se.
- 340, Communications: Electrical, subclasses 7.1 through 7.63 for paging via modulated carrier wave; subclass 311.2 for nonselective paging; subclasses 539.1-539.32 for condition responsive indicating systems with a radio coupling link; subclasses 825-825.98 for means for controlling the operations of a signaling device or devices in a selective manner over a lesser number of communication lines than the number of different results which can be obtained by signaling over said lines and which may contain transmission and receiving means in circuit (radio remote control systems), especially subclass 825.69 for a radio link in pulse responsive selection actuation; and subclasses 870.01-870.44 for telemetering systems in which the received signal is at any instant proportional to a condition at the transmitter.
- 342, Communications: Directive Radio Wave Systems and Devices (e.g., Radar, Radio Navigation), subclasses 350+ for directive carrier wave systems.
- 343, Communications: Radio Wave Antennas, subclasses 5+ for reflected carrier wave systems (e.g., radar); subclasses 100+ for directive radio wave systems; subclasses 700+ for antennas.
- 348, Television, for television systems.
- 358, Facsimile and Static Presentation Processing, for facsimile systems.
- 367, Communications, Electrical: Acoustic Wave System and Devices, for geophysical systems, for signalling by means of mechanical or compressional waves, such as sound or supersonic waves. See subclasses 87+ for echo systems; and subclasses 131+ for underwater systems.
- 370, Multiplex Communications, for multiplex communication systems which may include modulated carrier wave systems.
- 375, Pulse or Digital Communications, is the generic class for pulses modulated onto a non-light wave carrier; see subclasses 222+, 259+, 301, 303, 321, 322+, and 338+.
- 379, Telephonic Communications, for a two-way electrical transmission of intelligible audio information over an electrical conductor.
- 380, Cryptography, subclasses 255 through 276 for a communication system using cryptography.
- 381, Electrical Audio Signal Processing Systems and Devices, subclasses 1+ for broadcast or multiplex stereo.
- 398, Optical Communications, various subclasses for optical communication.
- 399, Electrophotography, subclass 8 for remote monitoring of an electrophotographic device.
- 463, Amusement Devices: Games, subclasses 1+, especially subclasses 39 and 40+, for a non-projectile game with telecommunication means.
- 505, Superconductor Technology: Apparatus, Material, Process, subclasses 150+ for high temperature ( $T_c$  30 K) superconducting devices, particularly subclasses 202+ for electrical communication systems.
- 709, Electrical Computers and Digital Data Processing Systems: Multiple Computer or Process Coordinating, subclasses 200+ for data transferring among a plurality of spatially distributed computers or digital data processing systems.
- 714, Error Detection/Correction and Fault Detection/Recovery, appropriate subclasses for generic error checking.

## SECTION IV - GLOSSARY

### MODULATED CARRIER WAVE

A wave resulting when the necessary characteristics of an intelligence or information signal are impressed on a carrier wave.

### RADIOTELEPHONE SYSTEM

A system for establishing a voice communication link between a base and a mobile transceiver via a wireless carrier wave channel that is allocated for use during a communication link, and wherein the mobile transceiver has a specific assigned call address number.

### TELECOMMUNICATIONS

All types of communications systems in which electric or electromagnetic signals are used to transmit modulated carrier wave information between points. The transmission media is via radio wave generally of a frequency above human speech, yet at a frequency lower than infrared frequencies. Radiotelephonic communication via wireless link is included in this class.

- (1) Note. The system and apparatus found in this and the indented subclasses under (1) above will include wave collection means, at least one wave mixing or modifying means, detector, or demodulator means and utilization means, which utilization means may consist of a sound reproducing device. This class also contains subcombinations of any of the above recited elements combined with coupling circuitry, whereby some function of a complete receiver system is performed; as for example, antenna means broadly plus detector, radio frequency amplifier plus mixer means, etc., and which subcombinations are not elsewhere classifiable.
- (2) Note. The apparatus found in this and the indented subclasses will be restricted to those systems which are limited, by claimed subject matter, to use in the reception and utilization of electromagnetic wave energy transmitted in the form of a carrier wave having an analog signal of arbitrary message content modulated thereon or in the form of one or more sidebands, with or without a carrier, resulting from the modulation of a carrier wave by some external source. The modulation may consist of amplitude modulation, frequency, or phase modulation, or any combination thereof. The utilization means will in general comprise loud speaker means but may include visual reproduction means or in some cases a combination of both.
- (3) Note. Ordinarily this and the indented subclasses will not include patents whose claimed subject matter includes (a) devices for the operation and control of mechanical devices at a distance by radiant energy, (b) systems and devices for the reception and utilization of facsimile (television) or telegraph signals, (c) systems and devices for the reception of energy which utilize compressional waves in the audible range (telephony), (d) systems and apparatus restricted to the use of radio wave energy which is transmitted to and reflected from some object, the reflected energy being

received at a receiving station (i.e., radar), and (e) systems and apparatus for the communication of pulse or digital information.

#### SEE OR SEARCH CLASS:

- 74, Machine Element or Mechanism, subclasses 10+ for mechanical dial operators; and see the notes thereto for the electrical type.
- 178, Telegraphy, and 379, Telephonic Communications, appropriate subclasses for line instruments restricted to use in these arts, particularly Class 178, subclasses 15, 17, 48, and 88+ for receivers and recorders adapted to code-signalling.
- 327, Miscellaneous Active Electrical Non-linear Devices, Circuits, and Systems, subclasses 113+ for miscellaneous frequency conversion or control.
- 329, Demodulators, appropriate subclasses for demodulators in general and particularly subclasses 315+ for frequency demodulators, subclasses 345+ for phase demodulators, and subclasses 347+ for amplitude demodulators.
- 330, Amplifiers, appropriate subclasses for radio frequency, intermediate frequency, or audio frequency amplifiers, per se, useful in receivers in this class.
- 331, Oscillators, appropriate subclasses for electrical oscillator systems of general application, particularly subclasses 1+ for automatic frequency stabilized oscillators; and subclasses 37+ for beat frequency oscillators similar to the frequency conversion stage of a heterodyne type receiver.
- 334, Tuners, appropriate subclasses for specific adjustable resonant circuits, per se, utilizable as tuners for radio receivers.
- 343, Communications: Radio Wave Antennas, subclasses 5+ for reflected or otherwise returned wave systems, e.g., radar; and subclasses 100+ for directive radio wave energy systems including receivers; see subclass 113 for direction finding receivers; and subclasses 700+ for antennas which may be used with radio receivers.

- 370, Multiplex Communications, for modulated carrier wave receivers and systems designed to simultaneously receive a plurality of messages.
- 375, Pulse or Digital Communications, subclasses 316+ for pulse and digital modulated carrier wave receivers.
- 398, Optical Communications, various subclasses for optical communication.
- 714, Error Detection/Correction and Fault Detection/Recovery, subclasses 712+ for diagnostic test of transmission facility.

**131 Frequency conversion between signal source (e.g., wave collector) and receiver:**

This subclass is indented under subclass 130. Subject matter where the frequency of the signal supplied by the signal source (antenna or cable) is converted to another frequency which the receiver is able to receive.

**132 Plural receivers:**

This subclass is indented under subclass 130. Subject matter which comprises all of the essential elements (as defined in the definition of subclass 130 above and not merely by name only) of two or more separate receiver means, each of the receiver means being capable of, if detached from or removed from each of the other separate receivers, deriving a useful signal which is representative of useful information carried by an incoming modulated carrier wave and which plural receiver system is not otherwise classifiable.

- (1) Note. The subject matter found here may include a plurality of structurally claimed receiver means whose input is derived from separate antenna or collector means, or a plurality of receiver means having some stage in common; for example, a common local oscillator, volume control, or utilization means, provided, that each recited receiver means is capable, if acting along and utilizing the common stage, of deriving a signal representative of the useful information carried by the modulation signal. Systems wherein a plurality of individual receiver means are fed from a single antenna will not be found here but in subclasses 6.1+. For purposes of classification in this subclass a plurality of

receivers each receiving its input from a single source are considered to be merely a plurality of output channels for a single carrier wave input even though each of the channels performs the normal function of a complete receiver having a common input means and may be tuned to receive a different wave frequency.

- (2) Note. The plurality of receivers found in this and the indented subclasses will generally be located at the same geographical location (as in a rack) or closely adjacent thereto (as in a building or structure), for example, plural nondirectional receivers utilized in a diversity system. The antennas or collecting means may be situated at some distance apart, but in the same general vicinity. To be classified here the plurality of receivers must have some common cooperation or association one with another. For a plurality of receivers located at distant locations relative to each other even though they may be responsive to a particular carrier wave originating at single transmitter the search must be extended to the systems subclasses herein-above in this class or other appropriate classes.

**133 With output selecting:**

This subclass is indented under subclass 132. Subject matter where output signals from the several receivers are compared and a selected one of the output signals is either (a) applied to a utilization means, or (b) suppressed or prevented from appearing at the utilization means.

**134 By signal strength:**

This subclass is indented under subclass 133. Subject matter where the output signal is selected according to its amplitude.

**135 By signal quality (e.g., signal to noise ratio):**

This subclass is indented under subclass 133. Subject matter where the output signals are selected according to a measure of their signal quality.

which has a broader frequency response than a signal path from the receiver input to the squelch circuit.

SEE OR SEARCH THIS CLASS, SUBCLASS:

303+, for receivers with noise elimination having plural signal paths.

**225 Plural paths:**

This subclass is indented under subclass 218. Subject matter where the received signal is applied to two or more signal paths.

**226.1 Measuring or testing of receiver:**

This subclass is indented under subclass 130. Subject matter comprising means which, in use, determines qualitatively or quantitatively, a receiver characteristic.

- (1) Note. The receiver may not be operative as to communication during test, and the receiver is usually a block and claimed at least nominally.

SEE OR SEARCH CLASS:

250, Radiant Energy, subclass 250 for measuring the wavelength or frequency of radio and microwave.  
331, Oscillators, appropriate subclasses for specific elements (e.g., noise generator), with no more than means for coupling to a receiver.  
343, Communications: Radio Wave Antennas, subclass 703 for measuring of a signal with an antenna and a nominal receiver or with quantitative means.

**226.2 Signal strength:**

This subclass is indented under subclass 226.1. Subject matter including a means for measuring a signal strength level.

SEE OR SEARCH CLASS:

324, Electricity: Measuring, and Testing, subclasses 76+ for measuring, testing, or sensing electricity, per se.

**226.3 Signal-to-noise ratio:**

This subclass is indented under subclass 226.1. Subject matter including a means for determining a signal-to-noise ratio.

**226.4 With meter or indicator:**

This subclass is indented under subclass 226.1. Subject matter including a means for displaying to a human observer information concerning the receiver characteristics being measured.

**227 Responsive to an input signal of particular predetermined frequency:**

This subclass is indented under subclass 130. Subject matter wherein the receiver is permanently adjusted in such a manner as to have a response to signals having a carrier wave of a predetermined frequency or a carrier signal having a predetermined identifying modulation frequency superimposed thereon.

- (1) Note. The subject matter found in this subclass is restricted to receivers responsive to a particular preselected input activating signal of a predetermined frequency or other preselected characteristic only.

SEE OR SEARCH THIS CLASS, SUBCLASS:

26+, for unauthorized use prevention systems whereby only a particular receiver means is enabled to receive a message transmitted from the transmitter.  
140, for a plurality of receivers selectively activated.  
229, for receivers with alarm or alerting means.  
352+, for remotely controlled receivers.

SEE OR SEARCH CLASS:

307, Electrical Transmission or Interconnection Systems, subclass 129 for frequency responsive switching systems.  
327, Miscellaneous Active Electrical Non-linear Devices, Circuits, and Systems, subclasses 1+ for miscellaneous discriminating circuits and particularly subclasses 39+ for frequency discriminating.  
333, Wave Transmission Lines and Networks, subclasses 165 through 212 for wave filters, per se, comprised of passive elements.  
340, Communications: Electrical, subclasses 7.2 through 7.63 for selective paging devices, subclasses 539.1-

- 539.32 for automatic alarm systems operated via radio link, and subclasses 825.71-825.76 for frequency responsive remote control signal devices.
- 343, Communications: Radio Wave Antennas, subclasses 5+ for object detection systems responsive to returned signals; and subclasses 113+ for direction finding receiver systems responsive to a particular input signal.
- 346, Recorders, subclass 37 for recording systems with control means of the radio receiver type.
- 361, Electricity: Electrical Systems and Devices, subclasses 182+ for electric control circuits for relays which are frequency responsive.
- 375, Pulse or Digital Communications, subclasses 316+ for pulse receivers which may be selectively responsive.
- 380, Cryptography, appropriate subclasses for cryptographic prevention of signal unauthorized use.
- 228 Responsive to specified modulation (e.g., call alarm, conelrad):**  
This subclass is indented under subclass 227. Subject matter including means for indicating a predetermined modulation in the carrier.
- (1) Note. Systems with a two-state indicator such as an alarm light off or on or with a filter passbanding a warning tone, are classified here only if combined with an analog carrier wave communication receiver.
- (2) Note. Selective systems responsive to a predetermined signal(s) are classified in Class 340, subclasses 147+.
- SEE OR SEARCH CLASS:**
- 340, Communications: Electrical, subclasses 539.1 through 539.32 for an alarm system with a radio link.
- 343, Communications: Radio Wave Antennas, subclasses 100+ for directive receivers.
- 229 Responsive to carrier absence or presence:**  
This subclass is indented under subclass 227. Subject matter including means for indicating the absence or presence of the carrier in a receiver.
- (1) Note. The responsive means may energize an alarm or two-state device.
- (2) Note. Systems for indicating carrier level or strength, or for indicating tuning, are classified in subclass 154.
- 230 Local control of receiver operation:**  
This subclass is indented under subclass 130. Subject matter including provision for controlling an operating characteristic of the receiver.
- (1) Note. The control may be automatic or manual.
- (2) Note. Remote control is excluded from this subclass and will be found in subclasses 352+.
- 231 Applied at or for specific intervals or periods of time:**  
This subclass is indented under subclass 230. Subject matter including means whereby the control voltage or signal is applied to the receiver at or for specific intervals or periods of time.
- (1) Note. The time interval determining means may include electrical time constant circuits, mechanical means, or electron tube means.
- SEE OR SEARCH CLASS:**
- 178, Telegraphy, appropriate subclasses for telegraph receivers combined with control means which may be activated at or for particular time intervals.
- 200, Electricity: Circuit Makers and Breakers, subclasses 35+ for clock actuated switching means.
- 307, Electrical Transmission or Interconnection Systems, subclasses 141+ for time delay or retarded switching systems.
- 318, Electricity: Motive Power Systems, subclasses 443+ for means for periodically, repetitiously, or successively activating a motor control means; and subclasses 445+ for automatic or time delay means in a motor control circuit.